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PRESENTATIONS

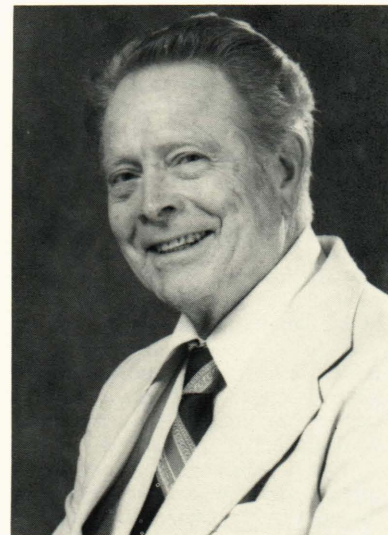
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THE AUTHORS



MORTON H. FRIEDMAN is deputy director of Biomedical Programs at APL and associate professor of biomedical engineering and ophthalmology at the Johns Hopkins School of Medicine. Born in New York City in 1935, he studied at Cornell University and then at the University of Michigan, where he received the Ph.D. degree in chemical engineering in 1961. He joined APL in 1965 and has been associated with the biomedical program since 1967.

Dr. Friedman developed a detailed theory of the dynamics of corneal swelling, for which he received the National Capital Award of the District of Columbia Council of Engineering and Architectural Societies, and subsequently an appointment as visiting scholar at Stanford University. His current research interest is in the effects of arterial geometry and fluid mechanics on the development of arteriosclerosis. Dr. Friedman teaches a course on biological transport in Johns Hopkins' Whiting School of Engineering.



JOE T. MASSEY, a native of Raleigh, N.C., received a B.S. degree in electrical engineering from North Carolina State College and, in 1953, the Ph.D. degree in physics from The Johns Hopkins University. After teaching at Clemson College and North Carolina State College, and military service in World War II, Dr. Massey joined the APL staff as a specialist in missile systems electronics. His subsequent career at the Laboratory has included basic studies in microwave physics, spectroscopy, and discharge plasmas. Since 1974, he has been director of Biomedical Programs at APL and holds a joint appointment as associate professor in the Johns Hopkins School of Medicine, Department of Biomedical Engineering.

ROBERT W. FLOWER, born in Baltimore in 1941, received a B.A. degree in physics from The Johns Hopkins University in 1966 and joined the APL staff in that year. Mr. Flower is a special advisor to the director of APL's Biomedical Programs Office and holds a joint appointment as associate professor of ophthalmology at The Johns Hopkins University. He is a specialist in medical

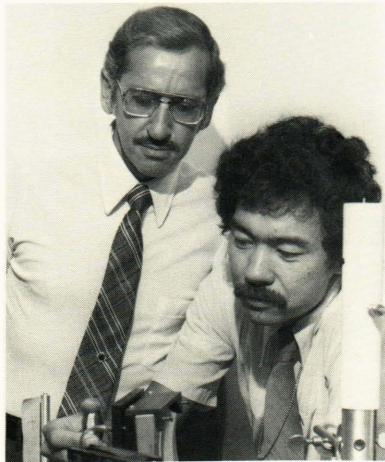


RICHARD J. JOHNS is the Massey Professor and director of the Department of Biomedical Engineering at The Johns Hopkins University and director of the Department of Biomedical Engineering at Johns Hopkins Hospital. He is also a member of the APL principal professional staff. He received his B.S. degree in 1947 from the University of Oregon and his M.D. degree in 1948 from The Johns Hopkins University.

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physics and is currently principal investigator on projects to determine the basic causes of retrolental fibroplasia, a disease that blinds hundreds of premature infants every year. Other projects with which Mr. Flower has been associated include the Frog Orbital Otolith experiment on an early Apollo flight, angiography of the ocular fundus, hyperbaric physiology, and animal ophthalmic surgery.

JOE BOHANDY is a native of Ohio and received the B.S., M.S., and Ph.D. degrees in physics from Ohio State University. He came to APL in 1965 and has been a member of the Microwave Physics Group of the Research Center since that time. Dr. Bohandy has worked on various problems in solid state and chemical physics using the techniques of electron spin resonance and optical spectroscopy. Recently, he has been involved in the application of these methods to the study of biologically significant molecules and processes.

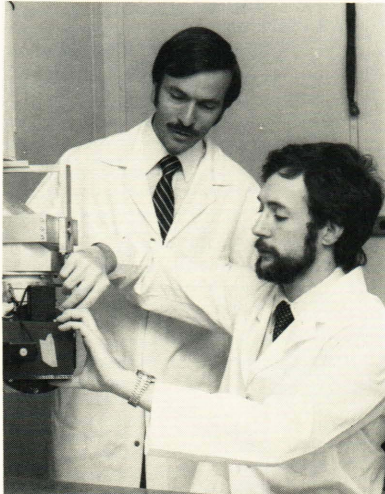


BORIS F. KIM is a member of the Research Center's Microwave Physics Group. He was born in Georgia and received his formal education at The Johns Hopkins University where he received the B.E.S. degree in electrical engineering in 1960 and the Ph.D. degree in physics in 1967. He joined APL after serving at the Armed Forces Radiobiology Research Institute from 1967 to 1969, during which time he conducted research in high-energy radiation dosimetry. His principal professional interests are in chemical physics, including atomic and molecular spectroscopy and electron spin resonance. He enjoys running and sailing and is interested in the evolution of traditional small sailing craft.

RICHARD A. MEYER is an engineer in the Biomedical Programs Office. Born in Springfield, Mass., in 1946, he studied electrical engineering at Valparaiso University (B.S., 1968) and did his graduate work in applied physics at The Johns Hopkins University (M.S., 1972).

Since joining APL in 1968, Mr. Meyer has been involved in a variety of biomedical research projects including the use of light scatter measurements to identify different types of biological cells and the study of the effect of membrane heterogeneity on the membrane transport process. His interest in the neurophysiological mechanisms of pain sensation began in 1976 after he developed the laser thermal stimulator. He holds a joint appointment as instructor in neurological surgery at the Johns Hopkins School of Medicine.

Mr. Meyer was recently elected to the Board of Directors for the Village of Kings Contrivance in Columbia. Other interests include gardening, wine making, and racquet ball.



JAMES N. CAMPBELL is an assistant professor of neurosurgery at The Johns Hopkins University and a staff neurosurgeon at the Johns Hopkins Hospital. He was born in Royal Oak, Mich., in 1948 and obtained a B.A. degree from the University of Michigan in 1969. He obtained his M.D. degree from Yale in 1973 after which he came to Johns Hopkins for postdoctoral training in neurosurgery and neurophysiology. He was appointed to the Johns Hopkins faculty in the Department of Neurosurgery in 1979 and obtained a Teacher-Investigator Award from the National Institutes of Health in 1980. He has been active in the study of mechanisms of pain sensation for the past several years. His outside interests include playing the piano, squash, and mountain climbing.

JOHN B. GARRISON (standing) is a member of the Space Department's staff. Born in Charlottetown, P.E.I., Canada, in 1920, he received his B.A. at Oberlin College (1941) and his Ph.D. (1947) in physics at the Massachusetts Institute of Technology. He worked on radar systems at the MIT Radiation Laboratory during 1942-45, and was an instructor in the MIT Physics Department (1945-47) and at the Institute for the Study of Metals and the University of Chicago (1947-50).

Dr. Garrison joined APL in 1950 and worked on advanced radar and sonar systems. During the past few years, he has become increasingly involved with practical applications of advanced technology to health care delivery systems, with emphasis on medical image analysis.



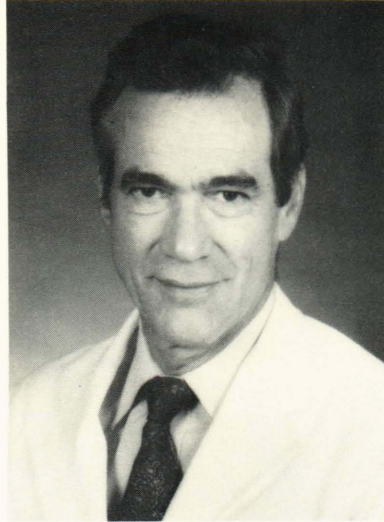
ROBERT E. JENKINS is assistant supervisor of the Space Analysis and Computation Group of the Space Department. Born in 1938 in Baltimore, he studied mechanical engineering (B.S., 1960) and physics (M.S., 1967) at the University of Maryland, where he did additional graduate work during 1967-70.

Mr. Jenkins joined APL in 1960. His work has been in computer modeling of Naval problems and in the prediction and analysis of satellite flight paths. In 1978 he assisted the Defense Mapping Agency in its programs for geodesy and geodetic positioning. At the present time, he is participating in the development of the automatic echocardiographic contouring system.



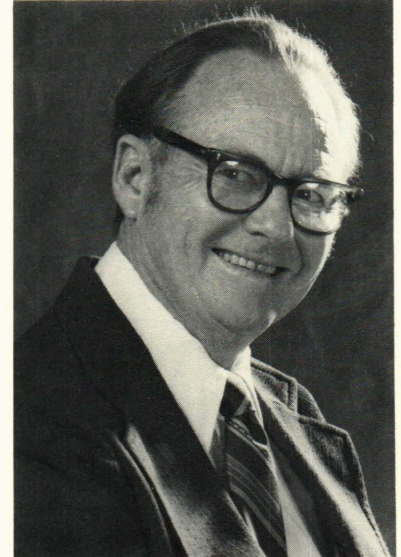
WOODROW SEAMONE was born in West Virginia in 1926. He holds a bachelor's degree in aeronautical engineering from The Catholic University of America. He is now on the principal professional staff at APL and also holds joint appointments as assistant professor of biomedical engineering and assistant professor of orthopedic surgery at The Johns Hopkins University. Since joining APL in 1953, he has specialized in servomechanisms, automatic control systems, and special assistive devices for the handicapped. He is currently personnel coordinator for the Fleet Systems Department.

For the past ten years, he has been the APL project manager and co-principal investigator on the development and evaluation of prosthetic and orthotic devices under Veterans Administration sponsorship. These devices include powered upper limb prostheses, a microcomputer-controlled robotic arm, and a new chin controller for wheelchairs.



GERHARD SCHMEISSER was born in Baltimore in 1926. He completed his undergraduate work at Princeton University and received his M.D. degree from The Johns Hopkins University in 1949. He is professor and associate director of orthopedic surgery at the Johns Hopkins School of Medicine and is head of the Limb Prosthesis Clinic at Johns Hopkins Hospital. He is also a member of the principal professional staff at APL. Dr. Schmeisser is co-principal investigator on the development and evaluation of prosthetic and orthotic devices. The current research includes development of a microprocessor-controlled robotic arm for the high-level quadriplegic. He selected volunteer quadriplegics to evaluate hardware under development, devised testing methods, and participated in overall conceptual design of the system.

His hobbies include boating, scuba diving, flying, sky diving, and motorcycling.



BEN E. AMSLER was born in Kansas City, Kans. and received the B.S.E.E. and M.S.E.E. degrees from Kansas State University in 1947 and 1950. He joined APL in 1950 and was active in the field of control system design and analysis until 1960. In 1960, he was appointed a William S. Parsons Fellow and later became active in the planning and direction of systems engineering efforts in the Fleet Systems Department.

In 1970, Mr. Amsler became associated with biomedical engineering when he was appointed data manager for a major clinical research activity at The Johns Hopkins University. He has held a joint appointment as assistant professor of biomedical engineering since 1976, when he was also assigned responsibility for the planning and coordination of engineering activities associated with implementation of new patient monitoring systems for the Adult Intensive Care Units of the Johns Hopkins Hospital.

JOHN G. PARKER was born in Providence, R.I. in 1926. He received the Sc.B. degree in electrical engineering (1947) and the Sc.M. (1950) and Ph.D. (1952) degrees in physics, all from Brown University. After a brief stay at the Johns Hopkins Institute for Cooperative Research, he joined the Naval Research Laboratory in 1952. There he conducted research on sound propagation in oceanic isothermal layers and the related problem of reflection from irregular surfaces.

Dr. Parker joined APL in 1956. His effort and interests at the Eisenhower Research Center have revolved mainly around the problem of molecular energy transfer. He has studied the dynamical physical and chemical events accompanying pulsed laser generation of various molecular species, effectiveness of laser-excited singlet oxygen in water sterilization, and capabilities of a system for detecting underground pipeline leaks based on the use of an acoustic diagnostic.



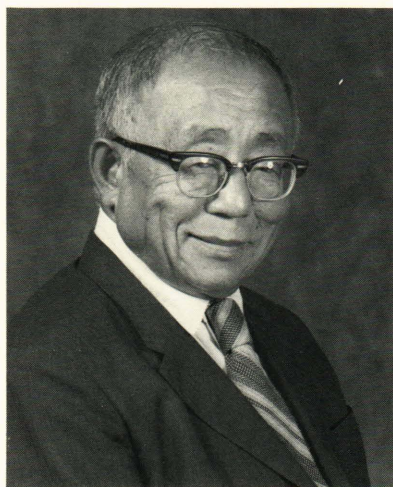
WILLIAM D. STANBRO was born in St. Louis in 1946. He studied at The George Washington University, receiving a B.S. degree in 1968 and a Ph.D. degree in physical chemistry in 1972. In 1972 he came to APL as an NSF Presidential Intern in the Power Plant Siting Group. Since then, he has been responsible for evaluating the chemical impacts of power plants and waste disposal operations. In the course of this work, he has studied the chemistry of chlorine in natural waters, the corrosion of copper alloy condensers, the chemistry of heavy metals in water, the dispersion of airborne plant effluents and their chemical interactions, and the impact of solid waste disposal on ground-water systems. Since 1980, he has also worked on the physics and chemistry of singlet-delta oxygen in solution. His hobbies include photography, archaeology, and, more recently, an Apple personal computer.



RANDOLPH W. BRUNS was born in Newark, N.J., in 1939. He earned a B.E.E. degree from the University of Virginia in 1961 and did graduate work in electrical engineering and business at The George Washington University and The Johns Hopkins University. He joined APL in 1961. From 1961 to 1968, he performed development and analysis work in the fields of missile guidance, sonar, and electronic countermeasures. From 1969 to 1977, Mr. Bruns was involved in the development of laser radar for precision tracking applications. During that period, he was also a project engineer for satellite communications work at APL. Since 1977, he has been project engineer for the RAM Guided Missile Weapon System.



EDWARD C. JARRELL was born in Easton, Md., in 1932. He received his B.S.E.E. and M.S.E.E. degrees from the University of Maryland in 1959 and 1967, respectively. Since joining APL in 1959, he has participated in the development of numerous missile guidance systems including TALOS ARM, Dual-Mode RED-EYE, and, most recently, RAM. At present he is group supervisor of the Electronic Design Group in the Advanced Missile Systems Branch.

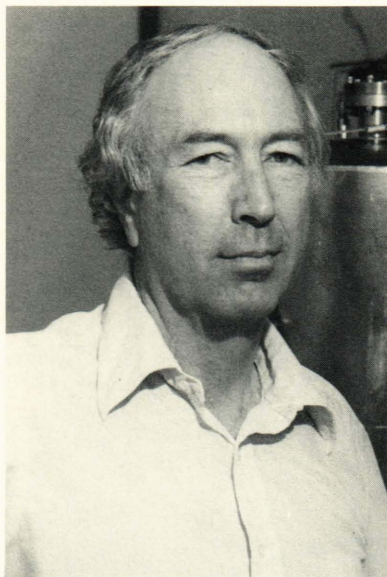


C. K. JEN was born in China in 1906. He received his college education in the United States, including the Ph.D. degree in physics from Harvard (1931). In 1933, he returned to China where he served as director of the Radio Research Institute of the National Tsing Hua University at Kunming (1937-45).

In 1950, Dr. Jen joined APL. He has been supervisor of the Microwave Physics Group, vice chairman of the Research Center, and a Parsons Professor of

chemical physics at the Homewood Campus (1967-68). In 1978, he became a consultant to the Research Center. His research has centered around microwave quantum physics and quantum electronics.

Dr. Jen has visited the People's Republic of China six times since 1972. He is an honorary professor at the Tsing Hua University in Peking and also at the University of Science and Technology in Hefei, Anhui.



CHARLES FELDMAN was born in Baltimore in 1924. He holds the A.B. and M.A. degrees in physics from The Johns Hopkins University and the Ph.D. degree (cum laude) in physics from the University of Paris (1952). He became a section head at the Naval Research Laboratory (NRL) and subsequently a laboratory manager at Melpar, Inc., where he led research on thin-film microelectronics and

basic research on materials and devices. A specialist in solid state and thin films, he joined APL in January 1967 and currently heads the Solid State Physics Group. Dr. Feldman was awarded NRL's 1958 Outstanding Young Applied Scientist Award, a Research Society of America Applied Science Award, and several Navy Incentive Awards. He holds about a dozen patents.